

alloy composition and a second coercivity which differs from the first coercivity, the second alloy composition not containing more boron by atomic percentage than the first alloy composition, whereby a coercivity of the two magnetic layers is different than the first and second coercivities and is determined by a relative thickness of the first magnetic layer to the thickness of the two magnetic layers.

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20. (Three Times Amended) A method for establishing a coercivity of magnetic recording material on a substrate comprising the steps of providing a substrate and first and second cobalt based alloy magnetic layers sputtered in sequence on the substrate and in contact with one another, wherein the first magnetic layer has a first quaternary alloy composition and a first coercivity, the second magnetic layer has a second quaternary alloy composition and a second coercivity, the first quaternary alloy composition contains as much or more boron by atomic percentage than the second quaternary alloy composition, with the relative thicknesses of the two magnetic layers determining the coercivity, and the coercivity being different than the first and second coercivities.

21. (Twice Amended) A magnetic recording medium, comprising:  
a substrate;  
a first magnetic layer over the substrate, wherein the first magnetic layer has a first alloy composition and a first coercivity; and  
a second magnetic layer on and in contact with the first magnetic layer, wherein the second magnetic layer has a second alloy composition and a second coercivity, the first and second alloy compositions are different, the first and second coercivities are different, a coercivity of the medium is different than the first and second coercivities, and varying a thickness fraction of the thickness of the first magnetic layer to the thickness of the first and second magnetic layers changes the coercivity of the medium a first percentage, changes the remanence of the medium a second percentage, and the first percentage is at least twice the second percentage.

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29. (Amended) The magnetic recording medium as defined by claim 21 wherein the second alloy composition excludes boron.

31. (Twice Amended) A magnetic recording medium, comprising:  
a substrate;  
a first magnetic layer over the substrate, wherein the first magnetic layer has a first alloy composition and a first coercivity and is sputter deposited over the substrate under a first deposition condition that includes a temperature and bias of the substrate; and  
a second magnetic layer on and in contact with the first magnetic layer, wherein the second magnetic layer has a second alloy composition and a second coercivity and is sputter deposited on the first magnetic layer under a second deposition condition that includes a temperature and bias of the substrate, the first and second alloy compositions are different compositions that contain Co and Pt, the second alloy composition does not contain more boron by atomic percentage than the first alloy composition, the first and second coercivities are different, the first and second deposition conditions are the same, and a coercivity of the medium is different than the first and second coercivities.

39. (Twice Amended) The magnetic recording medium as defined by claim 31 wherein varying a thickness fraction of the thickness of the first magnetic layer to the thickness of the first and second magnetic layers changes the coercivity of the medium a first percentage, changes the remanence of the medium a second percentage, and the first percentage is at least twice the second percentage.

41. (Twice Amended) A magnetic recording medium, comprising:  
a substrate;  
a first magnetic layer over the substrate, wherein the first magnetic layer has a first alloy composition and a first coercivity; and  
a second magnetic layer on and in contact with the first magnetic layer, wherein the second magnetic layer has a second alloy composition and a second coercivity, the first and second alloy compositions are different quaternary alloy compositions, the second alloy

8 composition does not contain more boron by atomic percentage than the first alloy composition,  
9 the first and second coercivities are different, and a coercivity of the medium is different than the  
10 first and second coercivities.

1 49. (Amended) The magnetic recording medium as defined by claim 41 wherein the  
2 second alloy composition excludes boron.

Add the following claims:

1 51. A magnetic recording medium, comprising:  
2 a substrate;  
3 an underlayer supported by the substrate;  
4 a first magnetic layer on the underlayer, said first magnetic layer having a first alloy  
5 composition of Co-20Cr-10Pt-8B and a first coercivity; and  
6 a second magnetic layer on and in contact with the first magnetic layer, the second  
7 magnetic layer having a second alloy composition of Co-22Cr-10Pt-6B and a second coercivity  
8 which differs from the first coercivity, whereby a coercivity of the two magnetic layers is  
9 different than the first and second coercivities and is determined by a relative thickness of the  
10 first magnetic layer to the thickness of the two magnetic layers.


1 52. A magnetic recording medium, comprising:  
2 a substrate;  
3 an underlayer supported by the substrate;  
4 a first magnetic layer on the underlayer, said first magnetic layer having a first alloy  
5 composition of Co-20Cr-10Pt-8B and a first coercivity; and  
6 a second magnetic layer on and in contact with the first magnetic layer, the second  
7 magnetic layer having a second alloy composition of Co-26Cr-10Pt-6B and a second coercivity  
8 which differs from the first coercivity, whereby a coercivity of the two magnetic layers is  
9 different than the first and second coercivities and is determined by a relative thickness of the  
10 first magnetic layer to the thickness of the two magnetic layers.

53. A magnetic recording medium, comprising:  
a substrate;  
an underlayer supported by the substrate;  
a first magnetic layer on the underlayer, said first magnetic layer having a first alloy composition of Co-20Cr-10Pt-8B and a first coercivity; and  
a second magnetic layer on and in contact with the first magnetic layer, the second magnetic layer having a second alloy composition of Co-20Cr-8Pt-4Ta and a second coercivity which differs from the first coercivity, whereby a coercivity of the two magnetic layers is different than the first and second coercivities and is determined by a relative thickness of the first magnetic layer to the thickness of the two magnetic layers.

54. A magnetic recording medium, comprising:  
a substrate;  
an underlayer supported by the substrate;  
a first magnetic layer on the underlayer, said first magnetic layer having a first alloy composition of Co-20Cr-8Pt-4Ta and a first coercivity; and  
a second magnetic layer on and in contact with the first magnetic layer, the second magnetic layer having a second alloy composition of Co-18Cr-6Pt-3Ta and a second coercivity which differs from the first coercivity, whereby a coercivity of the two magnetic layers is different than the first and second coercivities and is determined by a relative thickness of the first magnetic layer to the thickness of the two magnetic layers.

55. A magnetic recording medium, comprising:  
a substrate;  
an underlayer supported by the substrate;  
a first magnetic layer on the underlayer, said first magnetic layer having a first quaternary alloy composition that includes Co, Cr and Pt and a first coercivity; and  
a second magnetic layer on and in contact with the first magnetic layer, the second magnetic layer having a second quaternary alloy composition that includes Co, Cr, Pt and Ta

8 which differs from the first alloy composition a second coercivity which differs from the first  
9 coercivity, whereby a coercivity of the two magnetic layers is different than the first and second  
10 coercivities and is determined by a relative thickness of the first magnetic layer to the thickness  
11 of the two magnetic layers.



1 56. A magnetic recording medium, comprising:  
2 a substrate;  
3 an underlayer supported by the substrate;  
4 a first magnetic layer on the underlayer, said first magnetic layer having a first alloy  
5 composition and a first coercivity; and  
6 a second magnetic layer on and in contact with the first magnetic layer, wherein the  
7 second magnetic layer has a second alloy composition and a second coercivity, the first and  
8 second alloy compositions are different, the first and second coercivities are different, a  
9 coercivity of the medium is different than the first and second coercivities, and varying a  
10 thickness fraction of the thickness of the first magnetic layer to the thickness of the first and  
11 second magnetic layers changes the coercivity of the medium by at least 10 percent and changes  
12 the remanence of the medium by at most 5 percent.

1 57. The magnetic recording medium as defined by claim 56 wherein the first and  
2 second alloy compositions include Co and Pt.

1 58. The magnetic recording medium as defined by claim 57 wherein the first and  
2 second alloy compositions include Cr.

1 59. The magnetic recording medium as defined by claim 58 wherein the first and  
2 second alloy compositions are quaternary alloy compositions.

1 60. The magnetic recording medium as defined by claim 59 wherein the first alloy  
2 composition includes B and the second alloy composition includes B or Ta.